

REMARKS

Applicant respectfully requests reconsideration of this application in view of the foregoing amendments and the following remarks.

Rejections under 35 U.S.C. § 112

The Office rejected Claims 20, 30, and 32-33 under 35 U.S.C. §112 as being indefinite. Applicant respectfully traverses the rejections. Nevertheless, for the sole purpose of expediting allowance and without conceding the propriety of the rejections, Applicant has amended Claims 20, 30, and 32 to highlight that “the time-delayed buffered portion corresponds to a time period consumed when joining the particular client to the multicast group corresponding to the requested channel”. Accordingly, Claims 20, 30, and 32 particularly point out and distinctly claim the subject matter.

Regarding Claim 33, “The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under U.S.C. §112, second paragraph. Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.” *Seattle Box Co., v. Industrial Crating & Packaging, inc.*, 731 F.2d 818, 221 USPQ 568 (Fed Cir. 1984). (See MPEP 2173.05(b))

Applicant discloses that “Joining time 316 corresponds to the time consumed when joining a client 106 to a multicast group.” (Page 16, lines 3-4). One of ordinary skill in digital video would be aware of the amount of time it

takes to join a client to a multicast group. Accordingly, Claim 33 particularly points out and distinctly claims the subject matter.

Double Patenting

The Office provisionally rejected Claims 1-55 on the grounds of non-statutory obviousness double patenting as being unpatentable over Claims 1-73 of co-pending Application No. 10/218674.

Applicant respectfully requests that the rejection be held in abeyance until the Office issues a Notice of Allowance in one or both of the pending applications.

Rejections under 35 U.S.C. § 102

The Office rejected Claims 1-7, 9-10, 12-15, 17-20, 23-25, 27-32, 35-45, and 47-55 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,728,965 to Mao (Mao).). Applicant respectfully traverses the rejection.

Claims 1, 13, 23, 35, 41, and 48 as amended recites:

1. A method for fast channel changing in a multicast video distribution architecture, the method comprising:

detecting a channel change request that indicates a requested channel, the requested channel corresponding to a multicast group; and

transmitting a retained intra frame and no dependent frames for the requested channel as a unicast communication. (Emphasis added)

13. A channel change server comprising:

cached intra frames for a plurality of video streams, each respective video stream of the plurality of video streams associated with a respective channel of a plurality of channels;

a channel change request detector that is capable of detecting channel change requests from individual clients of a plurality of clients; and

a channel change request handler that is configured to respond to a detected channel change request from a particular client of the plurality of clients by extracting a most recent intra frame of a video stream associated with a requested channel from the cached intra frames and transmitting the extracted most recent intra frame and no dependent frames to the particular client using a unicast communication;

wherein the channel change server is associated with multicast video distribution of the plurality of video streams.
(Emphasis added)

23. A channel change server comprising:

retained intra frames for a plurality of video streams, each respective video stream of the plurality of video streams associated with a respective channel of a plurality of channels;

a channel change request detector that is capable of detecting channel change requests from individual clients of a plurality of clients; and

a channel change request handler that is configured to respond to a detected channel change request from a particular client of the plurality of clients by extracting a single retained intra frame of a video stream associated with a requested channel from the retained intra frames by transmitting the extracted retained intra frame and no dependent frames to the particular client using a unicast communication;

wherein the channel change server is associated with multicast video distribution of the plurality of video streams.
(Emphasis added)

35. An arrangement for channel changing, comprising:

retention means for retaining at least one intra frame for each video stream of a plurality of video streams, each respective video stream associated with a respective channel of a plurality of channels;

detection means for detecting a channel change request from a client that indicates a requested channel, the channel change request from the client signifying a demand to switch from a first multicast group to a second multicast group that corresponds to the

requested channel; and

handler means for handling the channel change request by transmitting a retained intra frame and no dependent frames to the client via a unicast communication, the retained intra frame retained by the retention means from a respective video stream that is associated with the requested channel. (Emphasis added)

41. A server that is configured to retain at least one independent frame for each video channel of a plurality of video channels that are being distributed using multicast communications and that is adapted to respond to channel change requests from clients by transmitting the retained at least one independent frame and no dependent frames of a requested video channel to a requesting client using a unicast communication. (Emphasis added)

48. A system comprising:
at least one processor; and
one or more media including processor-executable instructions that are capable of being executed by the at least one processor, the processor-executable instructions adapted to direct the system to perform actions comprising:
multicasting a plurality of channels;
retaining at least one intra frame for each channel of the plurality of channels; and
transmitting a retained intra frame and no dependent frames for a requested channel as a unicast communication responsive to a channel change request. (Emphasis added)

Mao US 6,728,965

Mao discloses a device for changing the channel in a digital video delivery system. The channel changer captures the multiple compressed video signals and stores each signal in a cache buffer. A processor indexes or points to the synchronization frames for each buffered signal. When a subscriber requests a specific channel, the processor accesses the requested video signal since the

subscriber already has the position of the synchronization frame of each video signal (Column 2, lines 25-42)

However, Mao does not disclose a method for fast channel changing comprising “*transmitting a retained intra frame and no dependent frames for the requested channel as a unicast communication.*,” as recited in Claim 1. (Emphasis added.) At least for similar reasons, Mao also fails to disclose the features of independent Claims 13, 23, 35, 41, and 48.

Mao discloses that “Referring to FIG 7, when a change of channel request reaches the BDT 12, the processor can immediately look up the location of the I frame for the pointer location buffer 57 and immediately access the appropriate video data. *The BDT then sends a stream of data from the FIFO buffer 50 to a multiplexer 44* to generate a multiplexed signal for transmission to BNU 14.” (Column 8, lines 52-58) (Emphasis added.)

Therefore, Claims 1, 13, 23, 35, 41, and 48 are allowable over Mao.

Claims 2-10, 12-22, 24-34, 36-40, 42-47, and 49-55

Claims 2-10, 12-22, 24-34, 36-40, 42-47, and 49-55 depend from independent Claims 1, 13, 23, 35, 41, and 48 and are allowable at least due to their dependency from Claims 1, 12 and 18.

The Office rejected Claims 8, 16, and 26 under 35 U.S.C. §103(a) as being unpatentable over Mao in view of Jerding et al. U.S. Patent Application No. 2005/0240961A1 (Jerding). Applicant respectfully traverses the rejection.

Jerding discloses a method for providing a screen saver to a user through an interactive media services client. The method includes providing a system operator with an interface to the programmable media services server and providing control options to allow the systems operator to select media to be presented in the screen saver utility. (Paragraph 0009)

Mao fails to teach or suggest “transmitting a retained intra frame and no dependent frames for the requested channel as a unicast communication,” as recited in Claim 1. (Emphasis added.) Mao also fails to disclose similar features of Claims 13 and 23. Jerding fails to cure the deficiency of Mao.

Thus, Mao and Jerding, whether taken alone or in combination (assuming for the sake of argument that they can be combined), fails to disclose or suggest the features of Claims 1, 13, and 23. Claims 8, 16, and 26 depend from independent Claims 1, 13, and 23 and are allowable by virtue of their dependency, as well as for additional features that they recite.

The Office rejected Claims 11, 21-22, and 33-34 under 35 U.S.C. §103(a) as being unpatentable over Mao. Applicant respectfully traverses the rejection.

Mao fails to teach or suggest “transmitting a retained intra frame and no dependent frames for the requested channel as a unicast communication.” as recited in Claim 1. (Emphasis added.) Mao also fails to teach or suggest the features of independent Claims 13, and 23 for reasons similar to those discussed above.

Claims 11, 21-22, and 33-34 depend from independent Claims 1, 13, and 23 and are allowable by virtue of their dependency, as well as for additional features that they recite.

The Office rejected Claims 46 under 35 U.S.C. §103(a) as being unpatentable over Mao in view of Duso et al. U.S. Patent No. 5,892,915 (Duso). Applicant respectfully traverses the rejection.

Duso discloses a client-server protocol for providing broadcast playback functionality. The protocol provides continuous play over multiple clips for extended periods of time, allows a play-list to be edited, allows current time to be used during the streaming of continuous media, and supports the Louth Automation video disk communications protocol. (Paragraph 2, lines 39- 60)

Mao fails to teach or suggest a server that is configured to “transmit[ing]

the retained at least one independent frame and no dependent frames of a requested video channel to a requesting client using a unicast communication," as recited in Claim 41. (Emphasis added) Duso fails to cure the deficiency of Mao.

Thus, Mao and Duso, whether taken alone or in combination (assuming for the sake of argument that they can be combined), fails to disclose or suggest the features of Claim 41. Claim 46 depends from independent Claim 41 and is allowable by virtue of its dependency, as well as for additional features that it recites.

CONCLUSION

Applicant respectfully submits that Claims 1-55 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. Should any matter remain unresolved, the undersigned respectfully requests a telephone conference with the Examiner to resolve any outstanding matter.

Respectfully Submitted,

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